

ICT Organics

The RhizoPriming Effect

All plants that grow in soils develop a synergistic relationship between the roots and the organisms that populate the area around the roots called the rhizosphere.

The millions of bacteria, fungi, protozoa, and other soil life that grow in the rhizosphere are more numerous than in the non-rhizosphere soil. This is because the plant roots feed the soil life with a combination of compounds excreted by the roots, as well as, dead root tissue. The plant may inject up to 50% or more of its energy, fixed in the leaves as carbohydrates, amino acids, and other compounds, into the rhizosphere to feed the soil life, for a very good purpose.

The microorganisms, which feed on the excreted compounds and dead root tissue, benefit the plant in numerous ways creating a symbiotic relationship we call RhizoPriming. The phenomenon of RhizoPriming consists in preparing the plant to stress without inducing the energy consuming defense mechanisms. This is important because the primed plant is able to respond to stress (biotic or abiotic) much faster and stronger.

In RhizoPriming, The plant feeds the bacteria, fungi, algae, and other microbial species in the rhizosphere, which in turn secrete enzymes, organic acids, antibiotics, growth regulators, hormones, and other substances which are absorbed by the roots and transported to the leaves. Organism types include mycorrhizae, cyanobacteria and various other bacteria, fungi, and actinomycetes.

To maximize the RhizoPriming effect, we have developed a line of products called RhizoChar. RhizoChar is a unique suspendable powder product line which contains a diverse range of immobilized beneficial microbes, as well as, a blend of metabolic triggers and microbial activators. Please note, all of our microorganisms are from known sources and are guaranteed non-GMO (Genetically Modified)

Using a proprietary process, we have immobilized a wide range of beneficial microbes in a stabilized carbon matrix where in their protected state they are able to be applied to the soil easily, increase their populations effectively, and less subject to being inactivated by other soil life.

In general, the beneficial microbes in the RhizoChar product line provide the following benefits:

- Accelerates germination
- Improves short and long term health of the plant, that works throughout the plants life
- Eliminates disease common to seedlings like damping off
- Makes minerals more available for plant uptake in the rhizosphere via the secretion of organic acids
- Produces metabolic activators, such as, vital phyto-hormones
- Suppresses various negative soil life via the secretion of enzymes
- Enhances the nutrient uptake by plants via the secretion of enzymes
- Reduces or eliminates fertilizer use
- Creates hyper photosynthesis creating super efficient plants

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The specific mode of action of the beneficial microbes will depend upon which RhizoChar product is used. Currently we have formulated the following RhizoChar products:

RhizoChar N (Nitro): Contains *Azotobacter beijerinckii*, *Azospirillum brasilense* and *Streptomyces badius*, as well as, a blend of metabolic triggers and microbial activators. This formulation is focused on phytohormone production, nitrogen fixation and more nutritious forage. Microbial concentration: 400 billion CFU / lb
Application rates vary depending upon type of crop. Use 1lb per acre at planting and at least 2 applications thereafter of ½ lb per acre at intervals of 2 weeks or more for vegetables and short term crops.

RhizoChar E (Ericaceous): which contains *Oidiodendron maius*, *Bacillus coagulans* and *Azotobacter beijerinckii*, as well as, a blend of metabolic triggers and microbial activators. This formulation is focused for use on Ericaceous plants, such as blueberries, cranberries, azaleas, rhody's who benefit from an enzyme released nutrients and acidic environment. Microbial concentration: 400 billion CFU / lb

RhizoChar Hydro-Seed (Powdered Seed Inoculant): Contains *Azotobacter beijerinckii*, *Bacillus subtilis*, *Bacillus licheniformis*, *Bacillus megaterium*, *Bacillus coagulans*, *Bacillus amyloliquefaciens*, and *Trichoderma koningii*. And a blend of metabolic triggers and microbial activators. This formulation is focused on turf applications at both the establishment and maintenance phases. Microbial concentration: 25 billion CFU / ounce

RhizoChar Turf, Fizzy Tab Formulation: Contains *Azotobacter beijerinckii*, *Bacillus subtilis*, *Bacillus licheniformis*, *Bacillus megaterium*, *Bacillus coagulans*, *Bacillus amyloliquefaciens*, and *Trichoderma koningii*. And a blend of metabolic triggers and microbial activators. This formulation is focused on turf applications at both the establishment and maintenance phases. Microbial concentration: 25 billion CFU / ounce

Application rates:

The RhizoChar products have 400 + micron size pieces of char that may clog fine spray tips and drip irrigation. Test your applicator before full scale use. Flood Jet type spray tip is recommended.

Spray rig: mix 1 pound of RhizoChar per 50 gallons of water, apply at 180 ounces per 1000

Divot mix: mix 1 pound per cubic yard

Seed inoculant: 1 pound per 400 pounds of seed, seed should be lightly dusted.

For soilless media: Add 1 pound per cubic yard, mix thoroughly.

For soil Injection: Add 1 ounce to 4 gallon of water, mix thoroughly. 1 to 2 gallons per DBH or foot of shrub

Note: Divot mix should be used within 72 hours as the RhizoChar will promote germination

RhizoChar produces and contains “metabolic triggers” that stimulate the plant to photosynthesize more efficiently, fixing more sunlight energy in the form of carbon compounds to increase the transfer of carbohydrates, proteins, and other growth substances into the root zone.